

### **REMARKS/ARGUMENTS**

In the Office Action dated 23 March 2007, claims 1-3, 5, 7-17 and 30 were rejected. Applicant has canceled claim 5, amended claim 2, and amended claim 1 to include the subject matter of canceled claim 5 and amended claim 2. Claims 1-3, 7-17, and 30 remain pending in this application. Applicant respectfully requests reconsideration of the application in light of the amendments and the following remarks.

#### **Rejections under 35 USC 102(e)**

Claims 1-3, 5, 7, 8, 12, 13 and 15-17 were rejected as being anticipated by Bourgeois US20040110054. Claim 5 has been canceled. Applicant respectfully submits that Bourgeois does not disclose all elements of modified independent claims 1 and 30 (emphasis added):

1. A fuel cell assembly comprising  
(a) a plurality of fuel cells, each of said fuel cells comprising:  
an anode layer, a cathode layer and an electrolyte interposed therebetween;  
a conducting layer in contact with at least one of said cathode layer and said anode layer;  
wherein said conducting layer is configured to facilitate transport of electrons; and  
(b) a plurality of interconnects, each interconnect in contact with a respective conducting layer of a respective one of the plurality of fuel cells, wherein at least one of said interconnects is a hollow manifold comprising a top wall, said top wall comprising at least one opening extending therethrough in flow communication with said hollow manifold;  
wherein said conducting layer is disposed on at least one of said anode layer, said cathode layer or at least one of said plurality of interconnect.

30. A fuel cell assembly comprising a plurality of fuel cells, each of said fuel cells comprising:  
an anode layer, a cathode layer and an electrolyte interposed therebetween;  
an anode interconnect to support said anode layer and a cathode interconnect to support said cathode layer; and  
**a conducting layer disposed on at least one of said cathode layer and said anode layer to reduce interface resistance between said anode layer and said anode interconnect and between said cathode layer and said cathode interconnect;**  
wherein at least one of said anode interconnect and said cathode interconnect is a hollow manifold comprising a top wall, a first side wall and a second side wall, said top wall, first side wall and second side wall defining a chamber therein, said top wall comprising at least one opening extending therethrough in flow communication with said chamber and said conducting layer is configured to facilitate transport of electrons from said anode layer and said cathode layer.

Bourgeois does not disclose a conducting layer disposed on anode, cathode, or interconnect. As pointed by the Examiner (page 3 of Office Action), paragraph 0029 of Bourgeois describes a plurality of dividers 72 coupled with the bottom wall 32. Dividers 72 function as electrical interconnects. In contrast, the conducting layer in the present application enhances electron transport when disposed on the interconnect or cathode or anode. Bourgeois neither discloses nor suggests disposal of a conducting layer on to anode, cathode or interconnect. Therefore Bourgeois does not anticipate modified claim 1 and claim 30.

Therefore claims 1 and 30 and claims 2-3, 5, 7, 8, 12, 13 and 15-17 which depend directly or

indirectly from claim 1 are similarly believed to be in condition for allowance.

Rejections under 35 USC 102(b)

Claims 1, 3, 5, 7-9, 12, 15-17 and 30 were rejected as being anticipated by Barnett US5770327. Claim 5 has been canceled and claim 1 is modified. Applicant respectfully submits that Barnett does not disclose all elements of independent claims 1 and 30 (emphasis added):

1. A fuel cell assembly comprising \

- (a) a plurality of fuel cells, each of said fuel cells comprising:
  - an anode layer, a cathode layer and an electrolyte interposed therebetween;
  - a conducting layer in contact with at least one of said cathode layer and said anode layer; wherein said conducting layer is configured to facilitate transport of electrons; and
- (b) a plurality of interconnects, each interconnect in contact with a respective conducting layer of a respective one of the plurality of fuel cells, wherein at least one of said interconnects **is a hollow manifold comprising a top wall, said top wall comprising at least one opening extending therethrough in flow communication with said hollow manifold;**  
wherein said conducting layer is disposed on at least one of said anode layer, said cathode layer or at least one of said plurality of interconnects.

30. A fuel cell assembly comprising a plurality of fuel cells, each of said fuel cells comprising:

- an anode layer, a cathode layer and an electrolyte interposed therebetween;
- an anode interconnect to support said anode layer and a cathode interconnect to support said cathode layer; and
- a conducting layer disposed on at least one of said cathode layer and said anode layer to reduce interface resistance between said anode layer and said anode interconnect and between said cathode layer and said cathode interconnect;**  
wherein at least one of said anode interconnect and said cathode interconnect is a **hollow manifold comprising a top wall**, a first side wall and a second side wall, said top wall, first side wall and second side wall defining a chamber therein, **said top wall comprising at least one opening extending therethrough in flow communication with said chamber** and said conducting layer is configured to facilitate transport of electrons from said anode layer and said cathode layer.

The solid oxide fuel cell (SOFC) stack described by Barnett (as shown in Fig.1) employs interconnects. Each interconnect has three parallel elongated cavities (that is chambers), the outer cavities have holes which extend to one surface of the interconnect, and the holes in the center/inner cavity extend to the other surface of the interconnect. Unit SOFC's in Barnett are interposed between adjacent interconnects with the anode facing the holes in the outer cavities and the cathode facing the holes in the center cavity of an adjacent interconnect. Fuel flows through the outer cavities and an oxidant flows through the central cavity (col. 1, 51-60).

In contrast, Applicant's claim 1 and 30 recite a fuel cell comprising at least one hollow manifold comprising a wall extending between a first end and a second end, said wall defining a single chamber therein. The wall comprises openings extending therethrough in flow communication with the chamber. The hollow manifold as described in the present application forms a single chamber. Barnett neither discloses nor suggests this feature or any modification to achieve it. Further more Barnett does not disclose a conducting layer disposed on anode cathode or interconnect. Therefore Applicant submits that

claim 1 and 30 are clearly allowable over Barnett.

Claims 3, 7-9, 12, 15-17 depend from the independent claim 1 which contain allowable subject matter. Therefore claims 3, 7-9, 12 and 15-17 are similarly allowable.

Rejections under 35 USC 103(a)

Claims 2, 10, 11, 13 and 14 have been rejected as unpatentable over Barnett in view of Mardilovich (US 2004/0081878). Claims 2, 10, 11, 13 and 14 depend from claim 1 which Applicant respectfully submits is patentably distinct from the applied references for the reasons discussed above.

Summary

Accordingly, Applicant respectfully submits that the claimed invention defines allowable subject matter over the applied art. Applicant respectfully requests that a timely Notice of Allowance be issued in this case. Should the Examiner believe that anything further is needed to place the application in even better condition for allowance, the Examiner is requested to contact applicant's undersigned representative at the telephone number below.

Respectfully submitted,

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June 25, 2007